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New Mexico AFO/CAFO Fact Sheet 1 Updated February 2008

COMPREHENSIVE NUTRIENT MANAGEMENT PLAN (CNMP) REQUIREMENTS

Overview

A CNMP is a conservation plan that is unique to animal feeding operations (AFOs). The CNMP addresses handling, storage and land application of manure and wastewater; mortality disposal; soil and water conservation practices; and, as requested by the producer, feed management and uses of manure for other than land application. The CNMP must meet all applicable local, tribal, State and Federal requirements. The producer and/or their consulting firm will develop all documents necessary to secure needed permits (see attached sheet, Who Needs What Permits and When?). The CNMP does not protect an operation from discharge violations; permits are needed to do this.

CNMP EQIP Requirements:

Producers receiving USDA Environmental Quality Incentives Program (EQIP) funding for waste management are required to develop and implement a Comprehensive Nutrient Management Plan (CNMP). Applicants must provide all required state, local and federal permits by end of EQIP application evaluation period to NRCS. The CNMP must be written and approved by a certified conservation planner and certified specialists. It is preferred that the CNMP be completed and signed by the producer prior to signing the EQIP contract and a higher ranking score will be given to applications for operations with a CNMP already developed. NRCS will need to review and approve the final design, drawings, specifications, and operation and maintenance plan prepared for the signed CNMP, prior to construction. The CNMP, contract practice designs, and cost-share funds are based on, and cannot exceed, what is allowed by existing discharge permit.

CNMP TECHNICAL REQUIREMENTS

1. Livestock production and manure storage area evaluation and practices planned

Evaluation includes:

- Current storage system capacity for present discharge permit
- Feedlot and other storage area runoff or leaching problems
- Current operation and maintenance activities for livestock production system components Plans include:
 - Collection, storage, transfer and/or treatment systems and equipment, such as waste storage facility, pond liner, and solids separator, needed to eliminate identified problems
 - Operation and maintenance plan for system components.
 - Emergency response or action plan addressing fire, personal injury and manure storage, collection, treatment and application.

2. Evaluation of land receiving manure and practices planned

Evaluation includes:

- Field leaching and phosphorus runoff potentials
- Evaluation of erosion potentials on fields receiving land applications

Plans include:

- Management practices such as filter strips, irrigation water management, and conservation crop rotation.
- Other soil and water conservation practices needed to reduce soil losses or runoff
- 3. **Nutrient management** (See following section)
- 4. **Record of CNMP Implementation** (See checklist)

NUTRIENT MANAGEMENT REQUIREMENTS OF A COMPREHENSIVE NUTRIENT MANAGEMENT PLAN (CNMP)

Follow NRCS Conservation Practice 590 Standard, Specifications and Job sheet

- 1. Develop realistic yield goals.
- 2. Sample soils annually for at a minimum pH, electrical conductivity (EC), soil organic matter (OM), total nitrogen (Kjeldahl Nitrogen test), nitrate nitrogen (N) (KCl method), phosphorus (P)(Olsen P-test if pH>7), potassium (K) (water extraction method), magnesium, calcium, and sodium (SAR). Soil samples will be collected and prepared according to the NMSU Extension Guidance (Guides A-114 and A-138). A minimum of 15 sub-samples are needed to be taken from a depth of between 6 and 8 inches and combined into one sample for each field. For corn silage, sample 0-12 inches for all nutrients and 12-24 inches for nitrates. Land with a history of different application rates within the field may be required to have separate soil testing and different application rates. NMED may require additional sampling. Soil test analyses shall be performed by laboratories that are accepted in the North American Proficiency Testing Program or laboratories whose tests are accepted by NMSU (partial list of labs attached).
- 3. Nutrient values of solid manure shall be determined prior to land application based on book values or laboratory analysis. NMSU recommends at least 8 sub-samples to make up the composite test sample. Have these analyzed for total N, P and K. Acceptable book values are listed in NRCS Conservation Practice Specification 590.
- 4. Liquid pond or lagoon water nutrient values must be determined by testing prior to land application. NMSU recommends at least 6 samples taken near the outlet area of the pond. It may be the area adjacent to the pump. This can best be done with one test before applying the water and the second during the application used for permit records. The following year an average of the last two tests (this year's pre-application and last year's during application) is to be used. Have these analyzed for total N, P, and K.
- 5. Conduct a field-specific assessment of the potential for phosphorus transport from the field and for nitrate leaching, using the NM Phosphorus Index and Leaching Index.
- 6. Determine appropriate application rate for manure and other nutrient sources, using the NMSU Fertilizer Interpretation software. Apply manure uniformly and calibrate manure application equipment at time of application. Determine and record rates applied to fields. Manure shall not be applied on frozen, flooded, or saturated soil. Apply only as much pond effluent as can be held in the planned crop root zone. For example: if the root zone profile can hold 4 in. of water (Total Water Holding Capacity) and the soil moisture is at 75% TWHC, then the maximum amount of 1 in effluent may be applied.
- 7. Setbacks are required for application of manure, litter, and lagoon or pond waste water. No application can be made closer than 100 feet to any down gradient sink holes, well heads, or other conduits to surface or ground water. A vegetated buffer (grass, no shrubs) 35 feet wide or more will allow organic application adjacent to the buffer.
- 8. Delay field application of animal manure or other organic by-products if precipitation capable of producing runoff and erosion is forecast within 24 hours of the time of the planned application.
- 9. Keep field specific records of crops, yields and commercial fertilizer and manure applications (including rates, timing, nutrient content and method of application and incorporation).

Partial Listing of Soil Testing Laboratories (Participating or have participated in American Proficiency Testing Program for Soil and Plant Laboratories)

Agricultural Testing and Research Lab

P.O. Drawer 1318 Farmington, NM 87499 505/326-2730

Servi-Tech Labs

P.O. Box 1397 1816 E. Wyatt Earp Dodge City, KS 67801 308/234-2418 www.servi-techinc.com

Inter Ag Services, Inc. IAS Laboratories

2515 E. University Dr. Phoenix, AZ 85034 602/273-7248

NMSU SWAT Testing Lab

MSC 3Q, Box 30003 Dept. of Agronomy and Horticulture Las Cruces, NM 88003 505/646-4422

Ward Laboratories

4007 Cherry Ave Kearney, NE 68848-0788 402/476-2811 www.wardlab.com

MDS Harris

621 Rose St. P.O. Box 80837 Lincoln, NE 68501 www.mdsharris.com

(most current listing of North American Proficiency Testing participating laboratories available at http://www.usual.usu.edu/napt/)

CHECKLIST FOR COMPLETED COMPREHENSIVE NUTRIENT MANAGEMENT PLAN

Prior to beginning a CNMP, all involved with the development of the plan *must* recognize that there may be a significant difference between the goal(s) and improvements identified in an overall plan and the limitations of a funding program such as EQIP. The identification of these differences is beyond the scope of this checklist. Assistance in understanding these potential differences can be obtained by contacting the State Program Manager. Section E of the CNMP shall include a listing of all the differences identified during the development of the final CNMP.

The completed CNMP shall address the following items as a minimum:

A.	A. Facility Information (Facility Information Sheet)					
		, , <u>i</u> , ,				
		Name of the owner and operator				
		Tract, Farm, and Field Numbers				
		Legal description of AFO				
		Hydrologic unit code				
		AU of the facility				
		Total acres available for nutrient application owned or leased by the facility				
		Date the CNMP was completed				
		Name and <u>Signatures</u> of the Client, Certified Planner – CNMP, Certified Specialists – Manure and Wastewater Handling and Storage, Land Treatment Practices, Nutrient Management.				
В.	Safet	y and Emergency Action Plan				
		Phone numbers for fire, ambulance, law enforcement, spill recovery, spill reporting, farm personnel				
		Recovery equipment - what and where				
		Action Plan for fire, personal injury, spills from containment structure, spills during pumping, spills during transport				
	-	ctives and Resource Concerns (NM-ENV-1 – Environmental Assessment and Resource ry Checklist)				
		Determine and state future goals and objectives of producer. An increase in herd size or the addition of a solid/liquid separator will change the nutrient balance on the facility. If future goals change the balance of the nutrient budgeting within the next five years, complete the comprehensive nutrient management plan for present and future conditions.				
		State and address resource concerns on facility and land application sites.				
		Consider runoff situation on facility; state final destination of drain ditches and canals, even if runoff from irrigation or storm events does not enter these waterways.				
		Consider if stream section is water quality limited (TMDL segment), state the water bodies pollutants of concern.				
		All environmental sensitive issues and concerns must be addressed in this section (i.e. surface water, bedrock, rock outcrops, wetlands)				

D. Inventory, Analysis and Alternatives 1. Conservation Plan Map Milk barn, holding tank, feed storage Livestock housing and corrals Identify existing fences, waste structures, lagoon(s), separator(s), solid storage, ditches, buried or surface pipelines, runoff containment, corral slopes, berms with distinctive labels corresponding to text in the CNMP such as Existing Pond A, Existing Static Screen Separator, et cetera. Identify proposed structures with distinctive labels corresponding to text in the CNMP such as Proposed Pond B, Proposed Static Screen Separator, Proposed Dike 1, et cetera. Residences Property lines, if appropriate; boundary lines of planning unit, field boundaries, land use and acres for each land unit, appropriate map symbols and legend Road names Wells and/or well heads Monitoring wells Surface waters, surface/subsurface drains (direction of flow) Title block showing: "Conservation Plan Map", "Prepared with assistance from Name _", Name of the conservation district, county and state, map scale, date prepared, North arrow Include a larger scale map showing a 1-mile radius surrounding facility, including all wells 2. Soil Information Prepare a soil map identifying map units. Prepare a copy of soil descriptions for map units shown. Identify land capability groupings, woodland suitability groups, pasture and hay land suitability groups, and other interpretive information regarding suitability for specific land uses. **3. NM CNMP Inventory Sheet**, or equivalent to include: Name and location of facility Production information (also see Section E), including number, species, and breed of animals, average weight, number of days in system, phases of production, manure volumes; consistency, location, and timing of the manure produced. The production estimates should include future expansion. Roof and/or Runoff Management Management of Dead Animals and Veterinary Wastes Manure Collection, Storage, Treatment, and Transfer (also see Section E): Collection - Identify method of collection, location of the collection points, scheduling of the collection, labor requirements?, necessary equipment or structural facilities, and impact that collection has on the consistency of the waste. Report information on maintenance and cleaning of the milking parlor, including cow preparation for dairies.

	Storage - The storage period should be determined by the utilization schedule; the waste management system should identify the storage period; the required storage volume; the type, estimated size, and location of the storage facility; and the impact of the storage on the consistency of the waste.
	Treatment – include an analysis of the characteristics of the waste before treatment; a determination of the desired characteristics of the waste following treatment; and the selection of the type, estimated size, location.
	Transfer – include an analysis of the consistency of the waste to be moved, method of transportation, distance between points, frequency and scheduling, and necessary equipment. Manure Utilization – Describe how manure is and/or will be used, which may include as a
	source of energy, methane generation, composting, bedding, mulch, organic matter, or plant nutrients. Land Application (also see Nutrient Management Job Sheet):
_	A complete analysis of utilization through land application includes designing the distribution system and selecting necessary equipment.
	A nutrient management plan is to be developed to determine application rates and volumes;
	selecting the fields; scheduling applications; and sampling manure, soil, water, and plants. Individual field maps with marked setbacks, buffers, waterways
	Site evaluation
	Crop rotation
	Crops and yields
	Nutrient uptake
	Expected seasonal application rate and time
	Estimated land area requirement
	Nutrient utilization worksheet
	Irrigation system (also see Job Sheet 449)_— describe how cropland is irrigated, including liquid waste application. Type of irrigation, set times, planned application amounts, frequency of irrigation, available water holding capacity and crop management allowable depletion should be covered. Describe any changes to the irrigation system that may be necessary to address resource concerns.
	Grazing management (maintain a 3-in grazing height, about 1500 lbs/ac dry matter)
	Feeding information
	Describe any measures that are or will be used to alter manure nutrient content through feed
	management such as phytase feeding, milk urea nitrogen testing.
U	Summary of Recommendations for Alternative Practices
	Other Inventory Worksheets, e.g. Phosphorus Index, Soil Conditioning Index (RUSLE2), Leaching Index, Dairy Pond Sizing Software, Wind Erosion Equation

E.	E. Plan Summary of Decisions				
	1. P	Plan Summary:			
		General System Description			
		Decision maker's Responsibilities			
		Recorded Decisions and Component Installation Schedule – include the appropriate land unit label, official practice name, brief description of the practice, and schedule of practice application in the proper sequence by calendar year			
		Production Function Requirements			
		Collection Function Requirements			
		Treatment Function Requirements			
		Storage Function Requirements			
		Transfer Function Requirements			
		Utilization Function Requirements			
		Contingency Plan			
		Public Protection			
		Closure Plan			
		Decision maker acknowledgement (signatures)			
	2. C	Conservation Nutrient Management Plan			
		CNMP signed			
	3. C	ontract Support Document (where applicable)			
F.	Job S	b Sheets			
		Include all job sheets used to prepare the CNMP, such as Job Sheet 449 (Irrigation Water Management), 590 (Nutrient Management), 595 (Pest Management), 328 (Conservation Crop Rotation), 344 (Seasonal Residue Management), and 633 (Waste Utilization). DO NOT include job sheets to be developed during the design phase such as Job Sheets 313 (Waste Storage Facility), 356 (Waste Treatment Lagoon), 359, 362 (Diversion), 378 (Pond), 430 (Irrigation Water Conveyance - all), 521A (Pond Sealing or Lining, Flexible Lining), 587 (Structure for Water Control - all), and 634 (Manure Transfer). These job sheets will be included in the J. Design Documentation section after the design is completed. Worksheets developed with producer, such as resource impact summaries, forage inventories, erosion estimates, and cost estimates.			
G.	Oper	ration and Maintenance			
	1. Re	eviews and Plan Modifications			
		Dates of Review, including person performing the review and recommendations that resulted from the review			
		Suggested modifications			
		A revision may be necessary because of a change in objectives, size of the unit, livestock numbers, economics, weather conditions, etc.			

		Based on the results of implementation, there also may be a need to look at additional alternatives if the results of plan implementation are not solving the identified problems or meeting the landowner's/operator's objectives.
	2. O	peration and Maintenance Procedures
		List of maintenance items to be done periodically to maintain system.
H.	Reco	ordkeeping
	activ	producer is to safely manage and assess his/her CNMP, it is critical he/she maintain a record of ities and the functionality of the system. A recordkeeping plan should be implemented that esses key elements of the CNMP to aid in the proper application and provide for assessment mentation.
	produ	re the CNMP is part of a permitting or other regulatory program, it is the responsibility of the accer to maintain any required documentation, including plans and implementation records, and them available to the regulatory organization, if required.
		Current soils test results by field (in accordance with Nutrient Management 590)
		Land application records for each manure or commercial fertilizer application—dates, methods, rates; crops planted, planting and harvesting dates, yields; nutrient application equipment calibration.
		Manure, lagoon sampling results
		Transfer of manure off-site (Job Sheet 633) (manure N,P,K, and salinity content, amount of manure transferred, date of transfer, recipient of manure – name, address, phone)
		Available maps and sketches resulting from the planning process that will be useful to the producer in implementing the plan
		Environmental evaluations
		Monitoring well results
		Activities associated with emergency spill response plan
		Records associated with any reviews by NRCS, third-party consultants, or representatives of regulatory agencies (dates of review, name of reviewer and purpose of the review, recommendations or follow-up requirements resulting from the review, actions taken as a result
		of the review)
		Records of maintenance performed associated with operation and maintenance plans Changes made in CNMP
I.	Perm	its, if applicable:
		NPDES CAFO Groundwater Discharge Inspection records Operator Certification Manager Certification
		Water Rights

1. It	1. Items to be Forwarded to Designer:				
	Include available maps, sketches, and preliminary designs resulting from the planning process that may be useful to the engineer in the design of practices.				
	If a land survey was completed, provide a hard copy and an electronic copy of raw survey data. The coordinates of benchmarks, well corners, hydrant bonnets, concrete slabs, separators, and other permanent elements are to be reported. Coordinates should be latitude/longitude, UTM, or state plane coordinates. If a local coordinate system was used (such as 5,000N and 10,000E), the benchmarks used must be in the local coordinate system AND if possible, locate the benchmarks using a survey grade GPS and report the latitude/longitude, UTM, or state plane coordinates. Identify the vertical datum used for surveys.				
	Provide a definition of all abbreviations used for survey (point code terminology such as GRD, TOPLAG, FNC, <i>et cetera</i>), features on sketches or drawings (such as WRL, CSL, MW, <i>et cetera</i>), and text.				
	If a land survey was not conducted, sketch the proposed improvements (such as a waste storage pond, a storm runoff pond, <i>et cetera</i>) with measurements identifying the distance from the corners of the proposed work to easily located permanent structures. The measurements could be achieved using a tape, chain, electronic device, <i>et cetera</i> .				
	Provide electronic versions of maps using ARC View or AutoCAD if possible. The use of AutoCAD is preferable.				
	Identify all known or supposed utilities public or private in all areas where improvements may be installed.				
	Provide documentation of soils/geologic information, if any is available.				
	A geotechnical investigation of the sites for all ponds will be necessary during the design effort. If the landowner is currently using the area to grow crops, verify that the driller/backhoe operator has permission to enter the area and that crops may be lost.				
2. It	2. Items to be Sent to the Planner after the Design has been Approved:				
	Construction Drawings				
	Construction Specifications				
	Design Engineer's Report				
	Construction Practice Job Sheets				

J. Documentation for Design Phase:

Who Needs What Permit and When?

NPDES General (Federal) Permit

- Issued by EPA
- NMED-Surface Water Quality Bureau (NMED-SWQB) assists EPA in inspections, enforcement actions, and ensuring state water quality standards are met
- Aimed primarily at protecting surface water bodies (waters of the U.S.) from pollution
- Permit is required for Concentrated Animal Feeding Operations (CAFOs) of all livestock types which discharge or propose to discharge pollutants to waters of the U.S.
- Expires 5 years from date of issuance, but continues in force until a new general permit is issued; CAFO General Permit for NM expired on March 10, 1998, and will be reissued in 2007; General Permit will be based on the new 2007 CAFO Regulations.
 - 1. Operations defined as CAFOs prior to April 14, 2003
 - Since EPA has not re-issued the 1993 CAFO general permit, operations defined as CAFOs prior to April 14, 2003, should have applied for an individual permit as of April 14, 2003.
 - 2. Newly defined CAFOs (operations that are defined as CAFOs as of April 14, 2003, but were not defined as CAFOs under the old NPDES Regulation)
 - Operations defined as CAFOs as of April 14, 2003, must seek NPDES CAFO permit coverage by July 31, 2007; revised date is now February 27, 2009.
 - 3. New dischargers (operations that met the CAFO definition after the revised regulations went into effect (4/13/03), but are not new sources)
 - will need to apply for CAFO permit coverage by July 31, 2007; revised date is now February 27, 2009.
 - 4. New sources (a large CAFO is a new source if construction began after April 14, 2003 on a site where no other source is located; an operation may also be a new source if it expands its operations)
 - will need to apply for a permit at least 180 days before beginning to operate the CAFO.
 - 5. Designated CAFOs (small and medium AFOs that the permitting authority has designated a CAFO)
 - will need to apply for a permit within 90 days after receiving the notice of designation.

- EPA's proposed CAFO Rule, to be finalized in July 2007 (now extended), does not require CAFO operators to apply for CAFO permit coverage unless they discharge or propose to discharge. Storm water runoff from land application areas is exempt from regulation provided that the CAFO operator is implementing a CNMP or NMP that meets EPA requirements specified in the final rule to be issued in 2007 (now extended). Without a CAFO permit, no discharge is allowed from the production area.
- Consider carefully EPA's guidance in the proposed rule about which operations should seek a permit. The list of those large CAFOs (700 or more mature dairy cattle; 1000 or more cattle) that should consider getting a permit includes:
 - o Where the CAFO is located in close proximity to water of the United States with land classified in USDA Land Use Capability Classes III through VIII;
 - Where the CAFO's production area is not designed and operated for zero discharge, including where the containment structure is not designed or maintained to contain all manure, litter, process wastewater, precipitation, and runoff that may accumulate during periods when the facility is unable to land apply in accordance with a NMP;
 - Where a CAFO that land applies does not have or is not implementing nutrient management planning that is designed to ensure that any land application runoff qualifies for the agricultural stormwater exemption; or
 - Where the CAFO has had a discharge in the past and has not corrected the factors that caused the discharge.
- Consult NMED-SWQB for site-specific permit information: http://www.nmenv.state.nm.us/swqb/psrtop.html, phone 505/827-2933; consult EPA's Agricultural Compliance website, http://www.epa.gov/agriculture/nacd.html
- Nutrient management plans (NMPs) for permitted CAFOs will need to be developed and implemented by July 31, 2007 or earlier; revised date is now February 27, 2009. It is expected that the CNMP will satisfy most of the requirements of the NMP, except for some additional management practices and recordkeeping requirements. NMPs should be developed/approved by certified specialists per NRCS requirements.

Who Needs What Permit and When?

Groundwater Discharge (State) Permit

- Issued by NM Environment Department (NMED)
- Administered by NMED-Groundwater Quality Bureau (NMED-GWQB)
- Aimed at protecting groundwater as well as surface water
- Permit is required for all dairies (AFOs or CAFOs) and for other agricultural facilities, including some feedlots
- Must be renewed every 5 years; consult NMED-GWQB for site-specific permit information.
- Website for NMED-GWQB Discharge Permit information is http://www.nmenv.state.nm.us/gwb/gwqbhome.html; phone 505/827-2918
- If a facility develops a CNMP, it may be submitted to the NMED-GWQB as part of a discharge permit application and the GWQB will evaluate it for protection of groundwater; a facility with a CNMP must continue to hold a Discharge Permit and comply with all the requirements of the Discharge Permit.

Agency Contacts

(Source: NMED-GWQB)

The following contacts may be useful in addressing questions you may have.

Issue/Concern	Contact	Agency	Location	Phone Number
Fly control and dairy cow diseases	Alf Reeb	New Mexico Dept. of Agriculture	Albuquerque	(505) 841- 9425
Vector control, includes flies	Pam Reynolds	New Mexico Dept. of Health	Santa Fe	(505) 827- 0279
General health concerns	Karen Johnson	New Mexico Dept. of Health	Santa Fe	(505) 827- 0006
Dust, odors, general air quality	Steve Dubyk	NMED - Air Quality Bureau	Santa Fe	(505) 955- 8025
Water quantity and water rights transfers	Art Mason or Frank Bradley	State Engineer's Office	Roswell	(505) 622- 6467
Ground Water and Ground Water Permits	Sarah McGrath	NMED-Ground Water Bureau	Santa Fe	(505) 827- 2112
Ground Water and Ground Water Permits	Kim Kirby	NMED-Ground Water Bureau	Santa Fe	(505) 222- 9523
Surface Water and CAFO Permits	Richard Powell	NMED - Surface Water Bureau	Santa Fe	(505) 827- 2798
Comprehensive Nutrient Management Plans and Conservation Practices	Rudy Garcia	NRCS- Natural Resources Conservation Service	Albuquerque	(505) 761- 4424

Comprehensive Nutrient Management Plans and Conservation Practices	Dr. Linda Scheffe	NRCS- Natural Resources Conservation Service	Albuquerque	(505) 761- 4448
Soils, nutrient management, crop production	Dr. Robert Flynn	NMSU-CES- New Mexico State University, Cooperative Extension Service	Artesia	(505) 748- 1228
Dairy management	Dr. Robert Hagevoort	NMSU-CES- New Mexico State University, Cooperative Extension Service	Clovis	(505) 985- 2292
Composting, Digesters	John O'Connell	NMED- Solid Waste Bureau	Santa Fe	(505) 827- 2385

Several city and county governments in New Mexico have established local ordinances to address issues such as flies, odors, dust, and zoning restrictions. Please consider contacting you local officials regarding how communities may assist in getting such ordinances enacted.